

SYSTEM AND METHOD OF ALTERING A VERY SMALL SURFACE AREA BY MULTIPLE CHANNEL PROBE

Abstract

A system and method are provided for altering a very small surface area of a feature of a substrate. The disclosed system includes a localized chemical delivery probe (LCDP) having a plurality of channels, in which each channel is adapted to carry a material through the probe to exit at an apex of the probe. The system further includes a way to maneuver the apex of the probe to a site proximate to the target feature on the surface. A first channel of the probe is preferably coupled to a source of chemical to assist in a reaction, and a second channel of the probe is preferably coupled to a second chemical, a diluting fluid, an expulsion gas, and/or suction to provide the same through the probe apex. In a preferred embodiment, a first chemical is delivered by a first channel of the probe to assist in an exothermic reaction to etch a low-K organic dielectric, and a diluting fluid or suction is provided by a second channel to confine the effect of the reaction.